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March 29, 2011

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**Subject: Maxey Flats Project –2010 Annual Report**

Dear Ms. Scully;

The Commonwealth of Kentucky is submitting the 2010 Annual Report for the Maxey Flats Project to fulfill the requirements of Section 4.0 of the Performance Verification Standard Plan (PSVP). The report was prepared by the Maxey Flats Section and summarizes information from the period of January 2010 through December 2010.

If you have any questions, please contact me at (606) 783-8680.

Sincerely,

Scott Wilburn, Project Coordinator

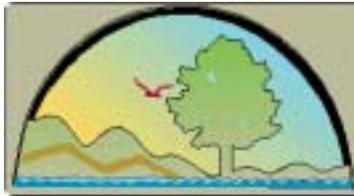
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**MAXEY FLATS PROJECT  
ANNUAL REPORT  
2010**

**March 29, 2011**



Energy and Environment Cabinet  
Department for Environmental Protection  
Division of Waste Management  
Superfund Branch

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**List of Acronyms**

ARARs	Applicable or Relevant and Appropriate Requirements
BoRP	Balance of Remedial Phase
Commonwealth	Commonwealth of Kentucky
DCSW	Drainage Channels Surface Water
IRP	Initial Remedial Phase
IMP	Interim Maintenance Period
MFP	Maxey Flats Project
O&M	Operation and Maintenance Requirement Summary
PSVP	Performance Standards Verification Plan
PSSW	Perennial Streams Surface Water
REI	Reasonably Exposed Individual
RML	Radioactive Material License
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey

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### List of Appendices

(Files separate from Main Report included on disc)

<b>Appendix A</b>	<b>Maxey Flats Project Analytical Data 2010</b> <i>2010 Maxey Flats Project Tritium Data.xlsx</i>
<b>Appendix B</b>	<b>Maxey Flats Project Well Levels 2010</b> <i>2010 MFP Alluvial Well Levels.xlsx</i> <i>2010 MFP Perimeter Well Levels.xlsx</i>
<b>Appendix C</b>	<b>Maxey Flats Project Precipitation 2010</b> <i>2010 MFP Daily Rainfall.xlsx</i>
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<b>Appendix F</b>	<b>Maxey Flats Project Compliance Information 2010</b> <i>2010 MFP LLW Report.pdf</i> <i>MFP 2010-11 RML.pdf</i> <i>MFP Response to NOV June 2010.pdf</i> <i>MFP Response to NOV October 2010.pdf</i> <i>NOV May 2010.pdf</i> <i>NOV Return to Compliance Oct 2010.pdf</i> <i>RHB Response to MFP NOV July 2010.pdf</i>
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## **1.0 Introduction**

The Commonwealth is submitting this report in accordance with Section 4.0 of the PSVP. The report summarizes sampling and maintenance activities listed in the Interim Maintenance Period Work Plans, PSVP, and the O&M.

## **2.0 Scope of Work**

The IMP is ongoing pursuant to the Consent Decree (Civil Action Number 95-58) signed by the USEPA, the Maxey Flats Steering Committee (Settling Private Parties), and the Commonwealth. The Commonwealth is responsible for completion of the BoRP that includes the Interim Maintenance Period, Final Closure Period and Associated Remedial Activities and Performance Monitoring.

The Interim Maintenance Period Work Plan describes the tasks to be completed including:

- Surface/ground water monitoring
- IRP cap maintenance and replacement
- Trench leachate management and monitoring
- Subsidence monitoring and surveys
- Erosion evaluation
- General site maintenance
- Contaminated liquid and waste disposal
- Data collection, analysis, and reporting
- Site drainage and erosion control features

## **3.0 Surface Water Monitoring**

All IMP Surface water monitoring locations are evaluated based on tritium sampling results. The 2010 annual tritium averages for all surface water locations yielded results below their specified action levels. The action level is the ARAR's screening level of 20 pCi/ml. Tritium results for all surface water monitoring appears in Appendix A Maxey Flats Project Analytical Data 2010; *2010 Maxey Flats Project Tritium Data.xlsx*.

### **3.1 East Detention Basin**

The first point of monitoring surface water runoff from the MFP is at the East Detention Basin (EDB). Sampling is performed at the EDB based on storm events of 2.8 inches of rainfall in a 24-hour period. In order for the sequential sampler to collect a storm event sample, the sampler is programmed to collect a sample based on 0.11 inches of rainfall per hour. A total of 49 samples were collected in 2010 and analyzed for tritium. Results ranged from 0.01 to 2.97

pCi/ml providing an average of 0.59 pCi/ml. The table below provides previous IMP Annual Averages:

East Detention Basin Annual Tritium Average	
Year	pCi/ml
2009	0.90
2008	0.05
2007	0.55
2006	0.16
2005	0.16
2004	0.14

On May 1<sup>st</sup>, a 100 year flood threshold was reached. This required assessment of the flow from the EDB to determine if it exceeded 44cfs, the allowable limit. If flow exceeds this limit, a design model re-evaluation is required. This 100 year flood event yielded a maximum flow of 22.2 cfs.

### 3.2 Perennial Streams Surface Water

Perennial Streams Surface Water (PSSW) monitoring is conducted at five locations in three streams inside and outside the MFP's boundary. These locations are monitored using sequential samplers that collect a four aliquot, daily composite. The PSSWs are compared to an action level of 20 pCi/ml. A total of 1,724 PSSW samples were collected and analyzed for tritium during 2010 with no anomalous data reported. For 2010 all PSSW locations were below the average annual tritium concentration action limit of 20 pCi/ml; assuring that the 4 mrem/yr IMP specified dose limit has been met

Sample location 122A serves as the background sample. It is located on Rock Lick Creek up-gradient from site influence. Tritium results for 2010 at this location ranged from -0.25 to 1.80 pCi/ml and averaged 0.06 pCi/ml. The table below provides previous IMP Annual Averages:

122A Annual Tritium Average	
Year	pCi/ml
2009	0.07
2008	-0.10
2007	0.02
2006	0.05
2005	0.05
2004	0.06

Sample location 106 is located on No Name Branch, a tributary to Rock Lick Creek. Location 106 receives direct influence from drain 144 and exhibits seasonal tritium level fluctuation concurrent with drain 144. Tritium results for 2010 at this location ranged from 0.14 to 12.52 pCi/ml and averaged 4.41 pCi/ml. The table below provides previous IMP Annual Averages:

106B Annual Tritium Average	
Year	pCi/ml
2009	3.39
2008	3.33
2007	5.24
2006	3.41
2005	4.23
2004	4.55

Sample location 122C is located on Rock Lick Creek, downstream of 106 and 143 influences. Tritium results for 2010 at this location ranged from 0.31 to 4.62 pCi/ml and averaged 1.34 pCi/ml. The table below provides previous IMP Annual Averages:

122C Annual Tritium Average	
Year	pCi/ml
2009	0.88
2008	0.87
2007	1.27
2006	0.86
2005	1.01
2004	1.10

Sample location 103E is located on Drip Springs Creek and receives influence from Drain 107. Tritium results for 2010 at this location ranged from -0.09 to 3.15 pCi/ml and averaged 0.49 pCi/ml. The table below provides previous IMP Annual Averages:

103E Annual Tritium Average	
Year	pCi/ml
2009	0.36
2008	0.47
2007	0.62
2006	0.47
2005	0.67
2004	0.90

Sample location 102D is the only PSSW sampler located outside the Buffer Zone. Due to its location below the confluence of three streams and its location outside the Buffer Zone, 102D is designated as the compliance point for site runoff. In addition to the action level of 20 pCi/ml this location also monitors the exposure to the REI and is compared to a 4-mrem/year dose limit. Tritium results for 2010 at this location ranged from -0.87 to 2.98 pCi/ml and averaged 0.79 pCi/ml; well below the action level thus assuring that the 4 mrem/yr dose limit has been achieved. The table below provides previous IMP Annual Averages:

102D Annual Tritium Average	
Year	pCi/ml
2009	0.58
2008	0.62
2007	0.93
2006	0.62
2005	0.79
2004	0.78

### 3.3 Drainage Channels Surface Water

Drainage Channels Surface Water (DCSW) monitoring is conducted at three locations inside the MFP's boundary. The three primary drains that produce intermittent flow are monitored and compared to a 25 mrem/year standard and a more restrictive annual 100 pCi/ml average action level. These drains are sampled on a daily composite basis by automated samplers that collect four daily aliquots. For 2010 all three drains produced monthly averages below the 100 pCi/ml action level assuring that the REI is less than the 25 mrem/yr IMP standard. A total of 814 samples were collected from the drains for tritium analysis.

Sample location C107 is located at the base of the West Drain which discharges into Drip Springs Creek. For 2010 this location yielded 161 samples for tritium analysis. Results ranged from 0.00 pCi/ml to 21.35 pCi/ml and averaged 10.99 pCi/ml. The table below provides previous IMP Annual Averages:

Drain C107 Annual Tritium Average	
Year	pCi/ml
2009	5.87
2008	10.42
2007	13.28
2006	8.62
2005	16.97
2004	14.54

Sample location 143 is located near the base of the South Drain which discharges into Rock Lick Creek. For 2010 this location yielded 307 samples for tritium analysis. Results ranged from -0.21 pCi/ml to 1.15 pCi/ml and averaged 0.06 pCi/ml. The table below provides previous IMP Annual Averages:

Drain 143 Annual Tritium Average	
Year	pCi/ml
2009	0.10
2008	-0.11
2007	0.07
2006	0.10
2005	0.10
2004	0.21

Sample location 144 is located at the base of the East Drain which discharges into No Name Branch. For 2010 this location yielded 346 samples for tritium analysis. Results ranged from 0.75 pCi/ml to 194.13 pCi/ml and averaged 61.60 pCi/ml. The table below provides previous IMP Annual Averages:

Drain 144 Annual Tritium Average	
Year	pCi/ml
2009	44.34
2008	33.76
2007	70.03
2006	43.35
2005	40.03
2004	60.66

### 3.4 Sampling Equipment Status

Samples were collected in accordance with the PSVP unless problems occurred beyond the site's control such as freezing lines, washouts, equipment failure, no flow, or power outages.

## 4.0 Groundwater Monitoring Wells

This section pertains to the Alluvial and Perimeter Monitoring Wells. The alluvial wells, located in the buffer zone, were installed during the IRP for the purpose of demonstrating conformance with the SOW. The 16 Perimeter wells are located around the restricted area perimeter. These wells were installed as investigative monitoring points prior to the Consent Decree. Originally over 300 investigative monitoring wells were installed but IRP operations removed all but

the remaining sixteen. These wells are maintained for water level monitoring to satisfy the IMP Work Plan and sampled to satisfy contaminant monitoring requirements of the RML. Tritium analysis for all the wells are contained in Appendix A Maxey Flats Project Analytical Data 2010; *2010 Maxey Flats Project Tritium Data.xlsx*. Water level monitoring for both alluvial and perimeter wells is contained in Appendix B Maxey Flats Project Well Levels 2010; *2010 MFP Alluvial Well Levels.xlsx* and *2010 MFP Perimeter Well Levels.xlsx*.

#### 4.1 Alluvial Wells

Alluvial well samples for 2010 were collected as outlined in the PSVP and the 2007 US EPA Five Year Review. Five wells were sampled in 2010; AW-6, 10 and 12 are sampled on an annual basis and AW-1 and 7 are sampled on a quarterly basis. During this reporting period, a total of 11 alluvial well samples were collected and analyzed for tritium, yielding results typical of historic range. For 2010, AW-1 yielded the highest tritium analysis; 6.41 pCi/ml. Comparison of this analysis to the 20 pCi/ml ARAR screening level indicates compliance of the Action Level.

Access to the alluvium within the buffer zone is controlled by the Commonwealth, therefore the alluvial wells are not considered a drinking water source and do not represent a potential radiological dose to the public.

#### 4.2 Perimeter Monitoring Wells

Sixteen monitoring wells known as the Perimeter Monitoring Wells are located along the west perimeter fence with the exception of one well located within the restricted area north of the burial trenches and EMC bunker.

The 2010 tritium results for the Perimeter wells were typical of historical data and trends. Contamination monitoring of the Perimeter Monitoring Wells is not a requirement of the IMP Work Plan.

### 5.0 Data Management

A data package is prepared for each group of samples analyzed on site. The data package contains the tritium instruments' QC charts (efficiency and background), chain of custody forms, raw data sheets, and data reduction sheets. Data is reviewed and validated by Denuke, Inc., a third party contractor that specializes in radiation services. Following data validation, the data is entered into the site's database and transmitted to USEPA, USDOE, *de maximis, inc.* and the Commonwealth. These packets are available on site for review. Analytical results are contained in the electronic file, Appendix A Maxey Flats Project Analytical Data 2010; *2010 Maxey Flats Project Tritium Data.xlsx*

## **6.0 Rainfall Data**

Presently there are three rain gauges associated with the MFP; East Detention Basin (EDB), sampling location 102D, and the main office. The official annual rainfall data is obtained primarily from the EDB rain gauge. This rain gauge was chosen because of its conjunction with the sampler at the EDB. Rainfall data from an alternate rain gauge, maintained at the main office, may be used to determine official rainfall totals if the EDB rain gauge is nonfunctional. A total of 41.85 inches of rainfall was measured at the EDB gauge during 2010; this is compared to an annual average precipitation of 47.33 inches (NOAA, National Climatic Data Center; Farmers, Kentucky). A 100 year flood event occurred the first weekend of May 2010. The EDB gauge recorded 5.54 inches of rain for this event. Annual precipitation data appears in Appendix C Maxey Flats Project Precipitation 2010; *2010 MFP Daily Rainfall.xlsx*.

## **7.0 Initial Remedial Phase Cap Maintenance**

### **7.1 Geomembrane Liner and Boots**

The liner covering the trench cap was inspected monthly as part of the monthly inspection and a comprehensive visual and air lancing inspection was completed in June as part of the annual inspection.

The trench sump boots were inspected during the monthly liner inspections and during the collection of trench sump liquid level measurements. The IMP inspections have revealed no defects to the liner material but deterioration of the extrusion welds was widely observed. An increased deterioration rate of the welds has been documented in the annual reports since 2006.

During 2010, a total of 21 repairs were made to the liner and boots. A total of 314 repairs have been made from 2004-2009. The repair map appears in Appendix D Maxey Flats Project IRP Cap 2010; *2010 MFP Liner Repair Map.pdf*.

### **7.2 Headwall Maintenance**

Headwall maintenance includes the four headwalls and associated items along the North Channel and the northeast corner piping, geomembrane liner batten and the liquid collection system.

During this reporting period, debris/leaves were removed numerous times from the trash grate and restricting plate of the upstream headwall of the northeast corner piping. Removal of the leaves/debris will be a continuous maintenance issue for the site.

### 7.3 Subsidence Monitoring and Repair

Subsidence inspections were conducted monthly in accordance with the O&M, Section 3.3.3, and Subsidence Monitoring. An area over trench 32 requiring subsidence repair was completed on August 31, 2010. The subsidence repair forms appear in Appendix D Maxey Flats Project IRP Cap 2010; *2010 MFP Subsidence Repair.pdf*. This is the fourth subsidence repair completed since 2003 Certification of Completion. Additionally, an area over trench 15 is being monitored for subsidence qualification.

Curd Surveying, Inc. performed the annual engineering subsidence survey of the trench cap in August 2010. Elevations were obtained for the 28 subsidence control points established during the remedial work and six additional points established in 2008. The measured variations between the 2009 and 2010 subsidence control points ranged from +0.06 feet to -0.09 feet. The variations between the 2004 (baseline) and the 2010 subsidence control points ranged from -0.02 feet to -0.41 feet. No particular area of significant subsidence was indicated. The report provided by Curd Surveying, Inc. is available in Appendix D Maxey Flats Project IRP Cap 2010; *2010 MFP Subsidence Survey.pdf*.

### 7.4 Diversion Berms

The diversion berms were inspected twice a month as required by the O&M. Excluding possible liner repairs, all were found to be in satisfactory condition.

### 7.5 Anchor Trenches

The anchor trenches were inspected twice a month as required by the O&M. A significant hole was located during the 2008 annual inspection on LP 363 between the restricted area fence and the north perimeter channel. This hole has not been permanently patched. There is an excessive amount of moisture in the soil which renders the welding process ineffective. Due to the location, the inability to effectively patch this hole does not impact the protectiveness of the liner to prevent infiltration.

### 7.6 Drainage Channels

All drainage channels were inspected during 2010 as required by the O&M. Maintenance within the drains included: control of weeds and vegetation in the Articulating Block mats and gabions. This was accomplished by spraying the areas with weed killer and/or manually removing the vegetation.

### 7.7 Articulating Concrete Block Mat (AB Mat) System

The AB mat system was inspected monthly as required by the O&M. Buildup of sediment within the AB mats has reduced their ability to reduce velocity of water flowing to the EDB and increased the need for vegetation control. This buildup of sediment should be expected as this is an inherent design feature of AB mats. This sediment buildup does not appear to impact the EDB's ability to control flow. In various locations the cable linking the blocks is showing signs of stress; this has been observed for several years and will continue to be closely monitored. The signs of stress on the cable indicate movement which could impact liner integrity. One section of blocks in the east drainage channel on LP-191ext is eroding at an accelerated rate but has not impacted performance.

### 7.8 Former Leachate Storage Facility Area

The covered area of the former leachate storage facility was found to be in satisfactory condition. The area shows no signs of subsidence or any damage to the geomembrane liner or boots around the tank extensions.

### 7.9 Inspections

A total of 93 inspections were performed during the period of January 2010 through December 2010. Excluding the item discussed in Section 7.5, no unsatisfactory notations were recorded that presented a persistent problem. All unsatisfactory items either received actions to return them to satisfactory status or were designated for monitoring.

### 7.10 Equipment Status

All liner repair equipment remains in good working condition.

## **8.0 Trench Leachate Management and Monitoring**

Trench sump liquid level measurements were obtained in accordance with the PSVP, Section 2.3, Sump Measurement and the 2007 US EPA Five Year Review. The purpose of collection and evaluation of the trench sump leachate levels is to detect recharge conditions that may require leachate management. A potentiometric map that utilizes water levels from the trench sumps and perimeter wells appears in Appendix E Maxey Flats Project Trench Sump Information 2010; *2010 MFP Potentiometric Surface Map.pdf*. The MFP considers the potentiometric map as inconclusive.

A comparison of the baseline to the manual measurements collected in October 2010 indicates little change in site wide freeboard. The average loss of freeboard

for all sumps is 1.25 percent. Three sumps have a greater than 10% loss of freeboard. Sumps 7-4, 46-1 and 46-2 have a freeboard percentage loss of 67%, 18% and 11% respectively.

A leachate management engineering evaluation of Sump 7-4 was completed and submitted to US EPA in August of 2008. The results of the evaluation initiated quarterly monitoring of the sump until it stabilizes at or exceeds pre-pump level. As of October 2010 the liquid level within 7-4 was 0.60 feet below pre-pump water level.

Appendix E Maxey Flats Project Trench Sump Information 2010 contains individual sump: Freeboard Table, Leachate Levels, and Bottom Measurements.

## **9.0 Contaminated Liquid and Solid Waste**

Contaminated liquid and waste generated on-site will be disposed of in accordance with the IMP Work Plan; Section 3.2, Treatment of Other Contaminate Liquids and Section 3.3, Waste Burial.

For 2010, five gallons of the estimated 53 gallons of liquid removed from the trench cap area required management during this reporting period. No solid waste was disposed of on-site during this reporting period. Solid and liquid waste generated from laboratory, radiological activities and site maintenance is temporarily stored in a secured area.

Appendix F, Maxey Flats Project Compliance Information 2010, contains the Annual Low Level Radioactive Waste Report submitted to the Cabinet for Health and Family Services, Radiation Health Branch (RHB); *2010 MFP LLW Report.pdf*.

## **10.0 Erosion Monitoring**

Erosion monitoring consists of obtaining semi-annual elevation measurements and observations of the east drainage channel. The USGS staff monitored the East Main Drainage Channel May 13, 2010. Due to budgetary constraints the contract with USGS has been discontinued. The Maxey Flats Project staff completed the October 2010 measurements using the USGS methodology. Additionally, Estes Surveying was contracted to complete erosion monitoring of the east drain by IMP Methodology and to produce a drain profile. Repair work resulting from the May flooding of the lower east drainage channel altered cross section 3.5. Therefore, the October measurements from this location should not be compared to previous measurements. Use of cross section 6.75 was discontinued due to tree interference. To assure effective erosion monitoring the MFP plans to complete both the USGS Method and IMP Method semi-annually

for 2011. The IMP Methodology Profile and Tables for the 2006-2010 East Drain erosion measurements (USGS Methodology) and the calculated areas are presented in the electronic files, *2010 IMP Methodology East Drain Survey Pg 1, 2, 3 of 3.pdf*, *2010 MFP USGS Methodology East Drain Erosion Data.xlsx* located in Appendix G Maxey Flats Project Drainage Channel Erosion Monitoring 2010.

Seasonal visual erosion monitoring of the south and west drainage channels revealed no major water erosion or mud/rock slides evident in any of the channels during this reporting period. A severe weather inspection resulting from the May flooding of the East drainage channel revealed minor changes.

## **11.0 IMP Work Plan Revisions, Changes and Correspondence**

Revisions and changes to the IMP Work Plan are required to be submitted in writing to USEPA for approval. No revisions were requested this year.

## **12.0 Custodial Care Activities**

### **12.1 Vegetation**

All vegetation was maintained below required height limits to allow for leachate monitoring.

### **12.2 Building and Grounds Maintenance**

In addition to the established buildings receiving routine maintenance, a furnace was installed in the garage and extensive repairs were completed on the garage roof to prevent leaking.

Three major construction projects were completed during 2010 as a result of flood damage; the lower part of the east main channel, Station 102D and Drip Springs Hollow access road. For specifics see Appendix H, Maxey Flats Project Monthly Reports and Photos 2010.

### **12.3 Security Fence**

The security fence surrounding the site remains in satisfactory condition with minor maintenance required. Remote operated gate controllers were installed on both the east and west perimeter gates during 2010.

### **12.4 Roadway Maintenance**

Routine maintenance was performed on all facility owned roadways.

### **13.0 Cathodic Protection**

Due to damages sustained from a lightning strike the cathodic protection system for the LSF tanks was non-functional from August 2009 to February 2010. Repairs made by Corrosion Concerns, LLC, a contracted Cathodic Protection Engineer, from January to February returned the system to operation. The Cathodic Protection Engineer also provided verification that the time period of non-operation had no impact on the tank's integrity. Verification appears in Appendix I Maxey Flats Project Cathodic Protection Inspection 2010, *2010 MFP Cathodic Protection Evaluation.pdf*. After repair, the cathodic protection system operation has been checked monthly with all readings documented within the accepted range.

### **14.0 Non IMP-Work Plan Activities and Developments**

The purpose of this document is to summarize completion of the tasks required by the IMP Work Plan for the calendar year. But these are not the only activities and developments relevant to the MFP. Some of the major Non IMP Work Plan activities and developments include:

May Flooding – On May first a one hundred year flood event occurred. This resulted in major damage to the lower part of the east channel, Drip Springs Hollow access road and the 102D sampling structure. All three of these required repairs beyond the scope of the MFP Staff and were therefore contracted out. All necessary contracted repairs were completed by December. Pictures of the flood, damages and repairs are contained in Appendix H Maxey Flats Project Monthly Reports and Photos 2010; *2010 MFP Annual Report Photos.pdf*.

May 14, 2010, a radiological material license audit was completed by the RHB. This audit resulted in the issuance of a Notice of Violation to the Maxey Flats Project for: failure to notify and receive approval to changes the sump leachate level monitoring frequency and for failure to include the IMP Work Plan in the RML with a defining role. On October 28, 2010 a return to compliance letter was received from the RHB. The Notice of Violation (NOV), NOV Correspondence, and the RML are contained in Appendix F.

On October 6, 2010 from 1:00 pm to 6:00 pm an open house was hosted at MFP to provide concerned citizens of the Commonwealth the opportunity to tour the facility, view displays, watch presentations and ask questions. The open house received over 60 visitors and resulted in one radio interview and two newspaper articles. Pictures of this event are contained in Appendix H.

On October 9, 2010 over twenty local and state agencies along with three area hospitals participated in an emergency preparedness exercise at MFP. The exercise involved a scenario that required first responders to evaluate chemical

and radiological hazards, triage victims, de-con injured and responders and transport patients to hospitals where the hospital was then evaluated on their ability to assess and care for the multiple injured. Pictures of this event are contained in Appendix H.

Since receiving a letter from US EPA in January 2008 recommending the KY Division of Waste Management explore entry of the MFP into the FCP, the DWM has diligently done so. The DWM has determined that trench stabilization has been achieved at the facility but the RHB (radiological regulatory authority for the MFP) disagrees. Throughout 2010 the DWM has met internally multiple times and had several discussions with RHB on this topic. To effectively address RHB's geologic and engineering concerns raised about FCP, the DWM has contracted the third party services of Kenviron. Kenviron is a local engineering firm chosen to evaluate requirements and data for MFP and determine if trench stabilization has ceased. Results of this evaluation are expected in early 2011.

Appendix H contains the Maxey Flats Project monthly reports file, *2010 MFP Monthly Reports.pdf*. These reports are generated for the purpose of keeping the Commonwealth's Superfund Branch informed of ongoing IMP, RML and administrative activities. The reports also contain further details about the topics discussed above.

## **15.0 Conclusion**

The data presented in this document supports the opinion of the Commonwealth and the US EPA that the remedy is performing as designed. The data additionally supports that the ARARs (listed below), as defined in Section II of the Statement of Work to the Consent Decree, are being achieved:

1. Prevent or mitigate the continued release of hazardous substances, pollutants and contaminants from the Site to underlying bedrock formations and ground water aquifers.
2. Prevent or mitigate the continued release of hazardous substances, pollutants and contaminants from the Site to surface water bodies and sediments;
3. Reduce the risks to human health associated with direct contact with hazardous substances, pollutants or contaminants within the Site.
4. Eliminate or reduce the risks to human health from inhalation of hazardous substances, pollutants or contaminants from the site;
5. Eliminate or minimize the threat posed to human health and the environment from current and potential migration of hazardous substances from the Site in the surface water, ground water and subsurface and surface soil and rock;
6. Minimize the infiltration of rainwater and ground water into the trench areas and migration from the trenches;

7. Allow natural stabilization of the Site to provide a foundation for a final cap over the trench disposal area that will require minimal care maintenance over the long term;
8. Minimize the mobility of trench contaminants by extracting trench leachate to the extent practicable and by solidifying the leachate in earth phase (with subsections not listed).

ARARs 1 & 2 were mitigated by source reduction through trench dewatering activities and interim cap placement during the IRP. Due to the lack of a bottom liner, it is impossible to completely prevent continued release of contaminants from the trench area; a fact known during remedy selection. Surface Water Data contained in Appendix A indicates tritium is maintained substantially below radiological action levels and specific dose limits.

ARARs 3 & 4 were accomplished by the demolition of inadequate waste storage buildings, evaporator facility and disposal of said waste and sump reduction during the IRP. Historical air monitoring reviewed during the IRP concluded that no inhalation threat is associated with MFP.

ARAR 5 was accomplished by purchase of a Buffer Zone, associated deed restrictions. Alluvial Well and Surface Water Analytical Data in Appendix A indicates tritium is being maintained below radiological action levels and specific dose limits.

ARAR 6 was accomplished by placement of the interim cap. The supporting trench freeboard data is included in Appendix E.

Achievement of ARAR 7 is currently being monitored by IMP Work Plan. Many indicators, including trench sump freeboard stability, annual subsidence surveys indicating minimal settlement, and subsidence repairs being few and minor support the position that stabilization is nearly complete and movement into the FCP should be considered. Additional historic knowledge of MFP subsidence and industry standards indicates that the majority of subsidence has already occurred.

ARAR 8 was fully accomplished during the IRP. IMP inspections to monitor the performance of ARAR's 8 effectiveness indicate compliance.

This concludes the textual outlining of the IMP activities at the Maxey Flats Project for 2010. If you would like to receive copies of inspections or deliverables not included in this report, please contact the MFP office.